What is claimed is:

1. An optical transceiver including a light emitting element for converting an electric signal into an optical signal and a light receiving element for converting an optical signal into an electric signal for carrying out a single-wire two-way communication by using an optical fiber, comprising:

an optical integrated chip in which said light emitting element and said light receiving element are formed on the same chip, and a light emitting section of said light emitting element and a light receiving section of said light receiving element are closely placed; and

a circuit board where a via hole for inserting said optical fiber is formed; wherein

said optical integrated chip is mounted on one surface of said circuit board at a position where said light emitting section and said light receiving section are fitted into said via hole, and

said optical fiber is inserted into said via hole to fix from the other surface of said circuit board.

2. The optical transceiver according to claim 1, wherein

an electrode pad to be connected to said optical integrated chip is placed on one surface of said circuit board, and

said optical integrated chip is mounted on said circuit board by flip-chip mounting.

3. The optical transceiver according to claim 1, wherein

said via hole is formed by laser beam machining.

4. The optical transceiver according to claim 1,

wherein

a circuit for driving said optical integrated chip is formed on said circuit board.

5. The optical transceiver according to claim 1, wherein

said light emitting section and said light receiving section are placed at a distance at which a part of each section is fitted in a diameter portion of a core section of said optical fiber.

6. An optical transceiver including a light emitting element for converting an electric signal into an optical signal and a light receiving element for converting an optical signal into an electric signal for carrying out a single-wire two-way communication by using an optical fiber, comprising:

an optical integrated chip in which said light emitting element and said light receiving element are formed on the same chip, and a light emitting section of said light emitting element and a light receiving section of said light receiving element are closely placed;

a circuit board where a via hole for inserting said optical fiber is formed; and

an optical component for separating an optical path from said light emitting section and an optical path to said light receiving section, wherein

said optical integrated chip is mounted on one surface of said circuit board at a position where said light emitting section and said light receiving section are fitted into said via hole,

said optical fiber is inserted into said via hole to fix from the other surface of said circuit board, and

said optical component is placed inside said via hole

between said optical integrated chip and said optical fiber, and a first waveguide through which a transmitting light is passed and a second waveguide through which a receiving light is passed are formed between said light emitting section and said light receiving section and an end surface of said optical fiber.

7. The optical transceiver according to claim 6, wherein

said optical component is a fiber in which a periphery of an inner layer section is covered by an outer layer section whose refractive index is different, and this outer layer section is covered by a total reflection film, and

said first waveguide is formed such that said inner layer section is opposite to said light emitting section, and said second waveguide is formed such that said outer layer section is opposite to said light receiving section.

8. The optical transceiver according to claim 6, wherein

said optical component is a fiber covered by a total reflection film, and said first waveguide is formed such that said optical component is opposite to said light emitting section, and

a total reflection film is formed on an inner surface of said via hole, and said second waveguide is formed between said via hole and said optical component.

9. The optical transceiver according to claim 6, wherein

an electrode pad connected to said optical integrated chip is placed on one surface of said circuit board, and said optical integrated chip is mounted as flip-chip mounting on said circuit

10. The optical transceiver according to claim 6, wherein

said via hole is opened by laser beam machining.

11. The optical transceiver according to claim 6, wherein

a circuit for driving said optical integrated chip is at least formed on said circuit board.

12. The optical transceiver according to claim 6, wherein

said light emitting section and said light receiving section are placed at a distance at which at least a part of each section is fitted in a diameter portion of a core section of said optical fiber.